IEEE 802.11g
Pen Size Wireless
USB 2.0 Adapter

User’s Guide

Regulatory notes and statements

Wireless LAN, Health and Authorization for use

Radio frequency electromagnetic energy is emitted from Wireless LAN devices. The energy levels of these emissions however are far much less than the electromagnetic energy emissions from wireless devices like for example mobile phones. Wireless LAN devices are safe for use frequency safety standards and recommendations. The use of Wireless LAN devices may be restricted in some situations or environments for example:

·On board of airplanes, or

·In an explosive environment, or

·In case the interference risk to other devices or services is perceived or identified as harmful

In case the policy regarding the use of Wireless LAN devices in specific organizations or environments (e.g. airports, hospitals, chemical/oil/gas industrial plants, private buildings etc.) is not clear, please ask for authorization to use these devices prior to operating the equipment.

Regulatory Information/disclaimers

Installation and use of this Wireless LAN device must be in strict accordance with the instructions included in the user documentation provided with the product. Any changes or modifications made to this device that are not expressly approved by the manufacturer may void the user's authority to operate the equipment. The Manufacturer is not responsible for any radio or television interference caused by unauthorized modification of this device, of the substitution or attachment. Manufacturer and its authorized resellers or distributors will assume no liability for any damage or violation of government regulations arising from failing to comply with these guidelines.

USA-FCC (Federal Communications Commission) statement

This device complies with Part 15 of FCC Rules.

Operation is subject to the following two conditions:

1. This device may not cause interference, and

2. This device must accept any interference, including interference that may cause undesired operation of this device.

FCC Radio Frequency Exposure statement

This Wireless LAN radio device has been evaluated under FCC Bulletin OET 65 and found compliant to the requirements as set forth in CFR 47 Sections 2.1091, 2.1093, and 15.247 (b) (4) addressing RF Exposure from radio frequency devices.

The radiated output power of this Wireless LAN device is far below the FCC radio frequency exposure limits. Nevertheless, this device shall be used in such a manner that the potential for human contact during normal operation is minimized.

When nearby persons has to be kept to ensure RF exposure compliance, in order to comply with RF exposure limits established in the ANSI C95.1 standards, the distance between the antennas and the user should not be less than 20 cm.

FCC Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy. If not installed and used in accordance with the instructions, it may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna.
2. Increase the distance between the equipment and the receiver.
3. Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio/TV technician for help.

Export restrictions

This product or software contains encryption code that may not be exported or transferred from the US of Canada without an approved US Department of Commerce export license.

Safety Information

Your device contains a low power transmitter. When device is transmitted it sends out radio frequency (RF) signal.

CAUTION: To maintain compliance with FCC's RF exposure guidelines, this equipment should be installed and operated with minimum distance 20cm between the radiator and your body. Use on the supplied antenna. Unauthorized antenna, modification, or attachments could damage the transmitter and may violate FCC regulations.

The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

CE Mark Warning

This is a Class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

Protection requirements for health and safety – Article 3.1a

Testing for electric safety according to EN 60950 has been conducted. These are considered relevant and sufficient.

Protection requirements for electromagnetic compatibility – Article 3.1b

Testing for electromagnetic compatibility according to EN 301 489-1, EN 301 489-17 and EN 55024 has been conducted. These are considered relevant and sufficient.

Effective use of the radio spectrum – Article 3.2

Testing for radio test suites according to EN 300 328-2 has been conducted. These are considered relevant and sufficient.

CE in which Countries where the product may be used freely:

Germany, UK, Italy, Spain, Belgium, Netherlands, Portugal, Greece, Ireland, Denmark, Luxembourg, Austria, Finland, Sweden, Norway and Iceland.

France: except the channel 10 through 13, law prohibits the use of other channels.

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INTRODUCTION

Congratulations on your purchase of this IEEE 802.11g Pen Size Wireless USB 2.0 Adapter.

This manual helps to get familiar with the Pen Size Wireless USB 2.0 Adapter. This manual contains detailed instructions in operation of this product. Please keep this manual for future reference.

With a Wireless LAN (IEEE 802.11g) USB 2.0 Adapter, a desktop or laptop computer can communicate with another computer in a wireless way. Easy-to-use utilities are bundled with Wireless USB Adapter for configuration, monitoring, and diagnosis purposes.

Pen Size Wireless USB 2.0 Adapter can wirelessly transmit and receive data, minimizing the need for wired connections, at a speed of up to fifty-four megabit per second.

Wireless USB 2.0 Adapter provides users with an access to real-time information anywhere in their organization. The mobility provides productivity and service, which are not available under wired networks. The Wireless USB 2.0 Adapter configuration is easy to change from peer-to-peer networks, suitable for a small number of users, to full infrastructure networks of thousands of users that allow roaming around a broad area.

Overview of this User's Guide

Introduction. Describes the Wireless USB 2.0 Adapter and its features.

Unpacking and Setup. Helps you get started with the basic installation of the Wireless USB 2.0 Adapter.

Hardware Installation. Describes the LED indicators of the Adapter.

Software Installation. Tells how to setup the driver and the utility setting.

Technical Specifications. Lists the technical (general, physical and environmental) specifications of the Wireless USB 2.0 Adapter.

UNPACKING AND SETUP

This chapter provides unpacking and setup information for the Wireless USB 2.0 Adapter.

Unpacking

Open the box of the Pen Size Wireless USB 2.0 Adapter and carefully unpack it. The box should contain the following items:

- One 802.11g Pen Size Wireless LAN USB 2.0 Adapter
- One Driver & Utility CD-ROM
- One A-type USB male to female extension cable

If any item is found missing or damaged, please contact your local reseller for replacement.

Setup

The setup of the Wireless USB 2.0 Adapter can be performed using the following steps:

- Visually inspect the USB connector and make sure that it is fully plugged in to the system's USB port.
- Make sure that there is a well environment that there is no much intrusion to have a better connection.

Connecting the USB Extension Cable

The USB extension cable that comes with the Adapter has Type A connectors on both ends. One is a male Type A connector that plugs into the PC's USB port, and the other is a female Type A connector that plugs into the Adapter.

This USB extension cable have a special function, it can be twist to any direction to have the best connection in the air. It is recommended that the Pen Size Wireless USB Adapter was vertically plane with the ground.

HARDWARE INSTALLATION

LED Indicator

LNK (LINK)

The LNK indicator lights green when the Wireless LAN is connected to a network successfully. Otherwise the LNK indicator blinks green while the Wireless USB Adapter is scanning the wireless device.

Check the installation

The LEDs of the Wireless USB 2.0 Adapter are clearly visible and the status of the network link can be seen instantly:

1. When connected to the USB port and the driver was installed, the LNK LED will start blinking, it means that the device is starting to scanning a 802.11g wireless device near the Wireless USB 2.0 Adapter.
2. While the Wireless USB 2.0 Adapter linked up to the Access Point or to other Wireless LAN station, the LNK LED will always light up.

SOFTWARE INSTALLATION

This section will lead you to install the driver and utility of the Wireless USB 2.0 Adapter.

Windows 98se/ME/2000/XP Utility and Driver Installation

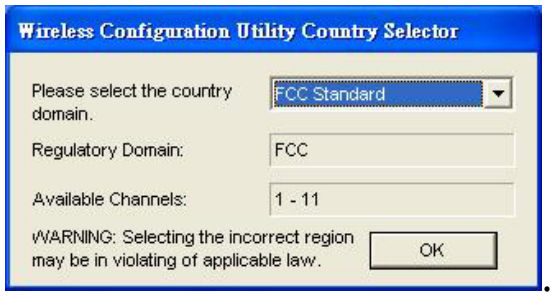
1. Insert the Wireless LAN USB 2.0 Adapter Driver & Utility CD-ROM into computer's CD-ROM Drive and it will automatically run a setup menu and install the driver and the utility, for Win98se, please reboot the system to install the driver to the system properly. In some specific setting on Windows system, you may need to proceed the software manually, go to your Windows Start menu and choose ***Run***, type "D:\Utility\Setup.exe" in the dialog box (D:\ will depend on where your CD-ROM drive is located) and click **OK**.
2. If you need to install the driver manually, refer each Windows OS to the following CD-Rom directory path: D:\Drivers\<Windows OS>\SIS163U.INF.

   Note: (D:\ will depends on where the CD-ROM drive is located and <Windows OS> will depend on the Windows Operating System you are using).

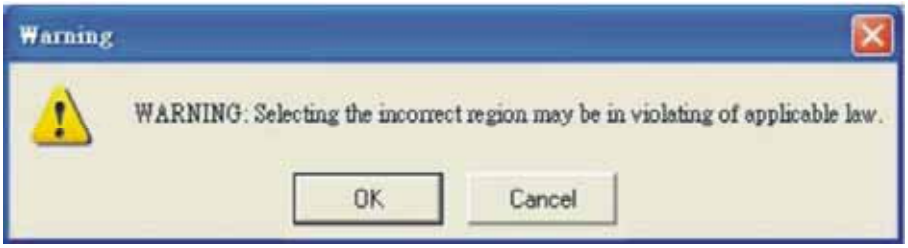
3. The Install Shield Wizard screen will appear. Click "**Next"** to continue.
4. The installation program will help you to setup the Wireless Utility.

   Be noted that the Windows XP have its own Wireless Utility; you can either use the utility of Windows XP or the provided utility.

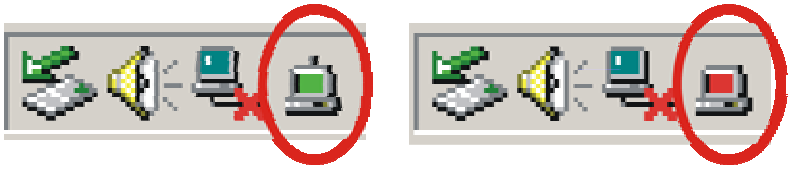
5. After finish the installation, plugged in the Wireless LAN USB 2.0 Adapter, you will see Wireless Configuration Utility Country Selector, select the country where you are using this Wireless device, users are responsible for ensuring that the channel set configuration is in compliance with the regulatory standards of these countries.



Warning: ***Be noted that selecting the incorrect region may result in a violation of applicable law; you will need to select the correct domain.***



6. You will see the icon on the Windows task bar when you finish the installation.



When the icon in the toolbar represents in green color, it is properly connected to the network and if it represents in red color, then it is not connected to the network.

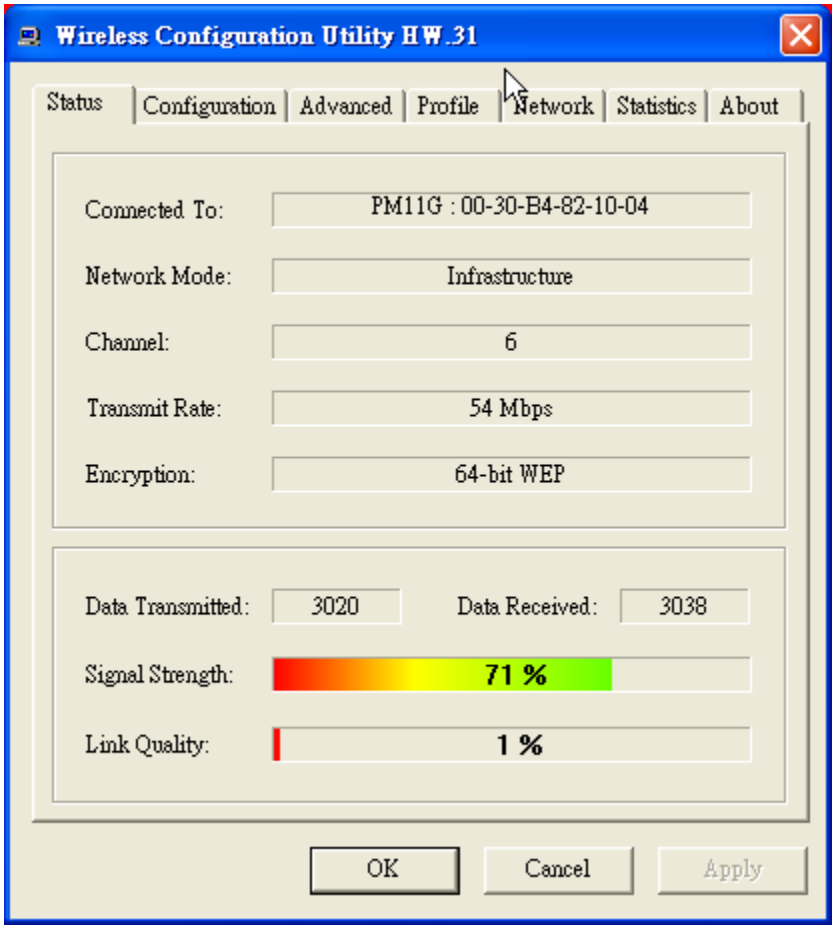
Wireless Utility Setting

With the Wireless USB 2.0 Adapter utility, users can configure all the functions provided by the Wireless Monitor Utility. Double-click the utility icon that appears in the taskbar.

The Wireless Monitor Utility includes seven tabs: Status, Configuration, Advanced, Profile, Network, Statistics and About.

Status

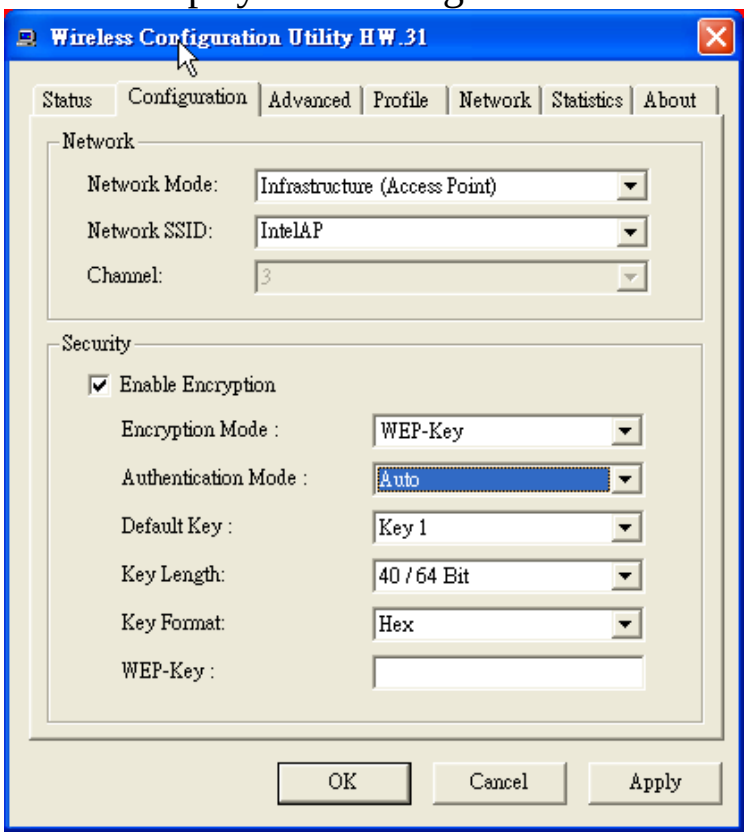
The Status screen shows you the status of the Wireless Adapter, it shows that where the device is connected to, the Network mode, the Channel, the transmit rate and the encryption mode.



There are two dialog boxes showing the data transmitted and the data received. The two signal lines show the Signal Strength and the Link Quality of the device.

Configuration

The Configuration function helps you to configure the Network and the Security.



Network: the setting of the Network mode, the SSID and the Channels.

- Network Mode:

If you want to connect with an Access Point, please set to “Infrastructure” mode. If you have more stations and just want to set them as local network, please set the mode to “Ad-Hoc” mode.

- Network SSID:

The SSID differentiates one Wireless LAN group name from another; so all access points and all devices attempting to connect to a specific Wireless LAN group name must use the same SSID. A device will not be permitted to join the BSS unless it can provide the unique SSID.

If the SSID parameter is “ANY”, it will detect the strongest signal of the wireless station.

- Channel:

It shows radio channel numbers that used for Wireless LAN networking.

The channel number can be set only under the Ad-Hoc operation mode. In Ad-Hoc mode stations, each station must have the same channel numbers and SSID.

In Infrastructure mode, the Wireless USB Adapter will automatically detect the channel number of the Access Point.

Security: the setting of the Network Encryption.

This function is used to protect wireless communication from eavesdropping. A secondary function of encryption is to prevent unauthorized access to a wireless network, and it can be achieved by using the Encryption function.

- Encryption Mode:

There are two kinds of encryption mode, **WEP encryption** and **WPA-PSK**.

Click the ***Enable Encryption*** to activate the security of the USB Adapter.

WEP-Key: WEP (Wired Equivalent Privacy) relies on a secret key that is shared between a mobile station and a base station (Access Point).

WEP-Passphrase: the Passphrase in the dialog box helps you to create a group of WEP key in the Key Setting.

- Authentication Mode:

Open System: with the same WEP key between the stations, the stations don't need to be authenticated, and this algorithm was set to default.

Shared Key: with the same WEP key between the stations in this Authentication algorithm, this type will use packets with encryption by transferring a challenge text which will be acknowledge by both side of the stations. In order to choose which authentication algorithm will be used, you must know which one the station supports this algorithm first.

It is recommended to select ***"Auto"*** if you are not familiar with the setting.

- Default Key (Key 1 ~ Key 4):

You can type the key that you want to use from Key#1 to Key #4, and the key that you type will be the encryption between the stations that you connected with.

- Key Length, Key Format and WEP Key:

If you select 64bit in Hex format, you must type 10 values in the following range (0~F, hexadecimal), or 64bit in ASCII format, you must type 5 values in the following range (0~9, A~Z and a~z Alphanumeric).

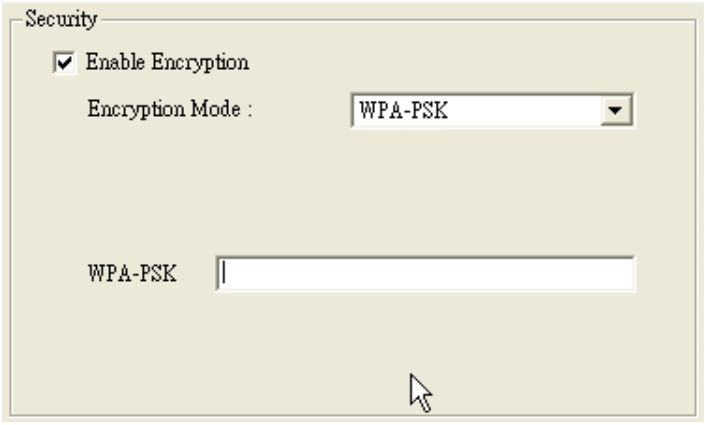
If you select 128bit in Hex format, you must type 26 values (0~F, hexadecimal), or 128bit in ASCII format, you must type 13 values in the following range (0~9, A~Z and a~z Alphanumeric).

Be sure that the USB Adapter and the wireless station were set in the same key.

Note: After all the settings are completed, click Apply to save the setting.

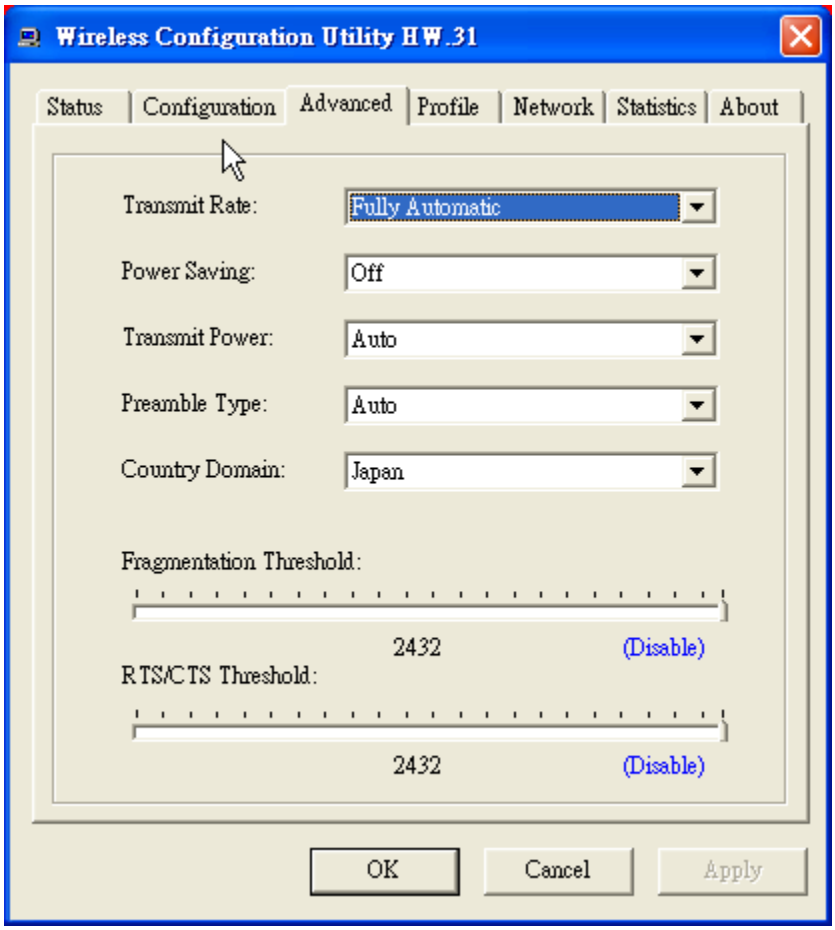
WPA-PSK: WPA-PSK (Wi-Fi Protected Access pre-shared key) is a simpler version that does not support 802.1x and requires a separate RADIUS server for mutual authentication.

Enter a Passphrase in the WPA-PSK dialog box. This passphrase must be the same on each computer that is connected to the wireless network.



Advanced

The Advanced settings help you to control the Wireless Adapter to adjust with wireless devices in certain environment.



- Transmit Rate:

You can choose one of the transmission rates as follows, 54Mbps, 48Mbps, 36Mbps, 24Mbps, 18Mbps, 12Mbps, 11Mbps, 9Mbps, 6Mbps, 5.5Mbps, 2Mbps, 1Mbps, and Fully Automatic. The Fully Automatic will automatically detect the suitable linking transfer rate and auto fall back when the signal is not too strong to transmit data, it will auto fall back from 54Mbps to 1 Mbps.

- Power Saving:

To set your Wireless Adapter as power saving mode, select “Off”, “Normal” or “Maximum”.

- Transmit Power:

By selecting the Transmit Power, you can select the Radio Frequency output power from Minimum, 12.5%, 25%, 50%, 100% or Auto.

- Preamble Type:

The usage of the preamble is to limit the packet size of the data to transmit. It is recommended to choose the short preamble when the link quality is bad, it is to prevent the wasting time of resending a long packet that is lost. The Default is Auto which access short and long preamble.

- Country Domain:

This is the channel selection of each country regulatory domain, select the country where you are using this wireless device, users are responsible for ensuring that the channel set configuration is in compliance with the regulatory standards of these countries.

- Fragment Threshold:

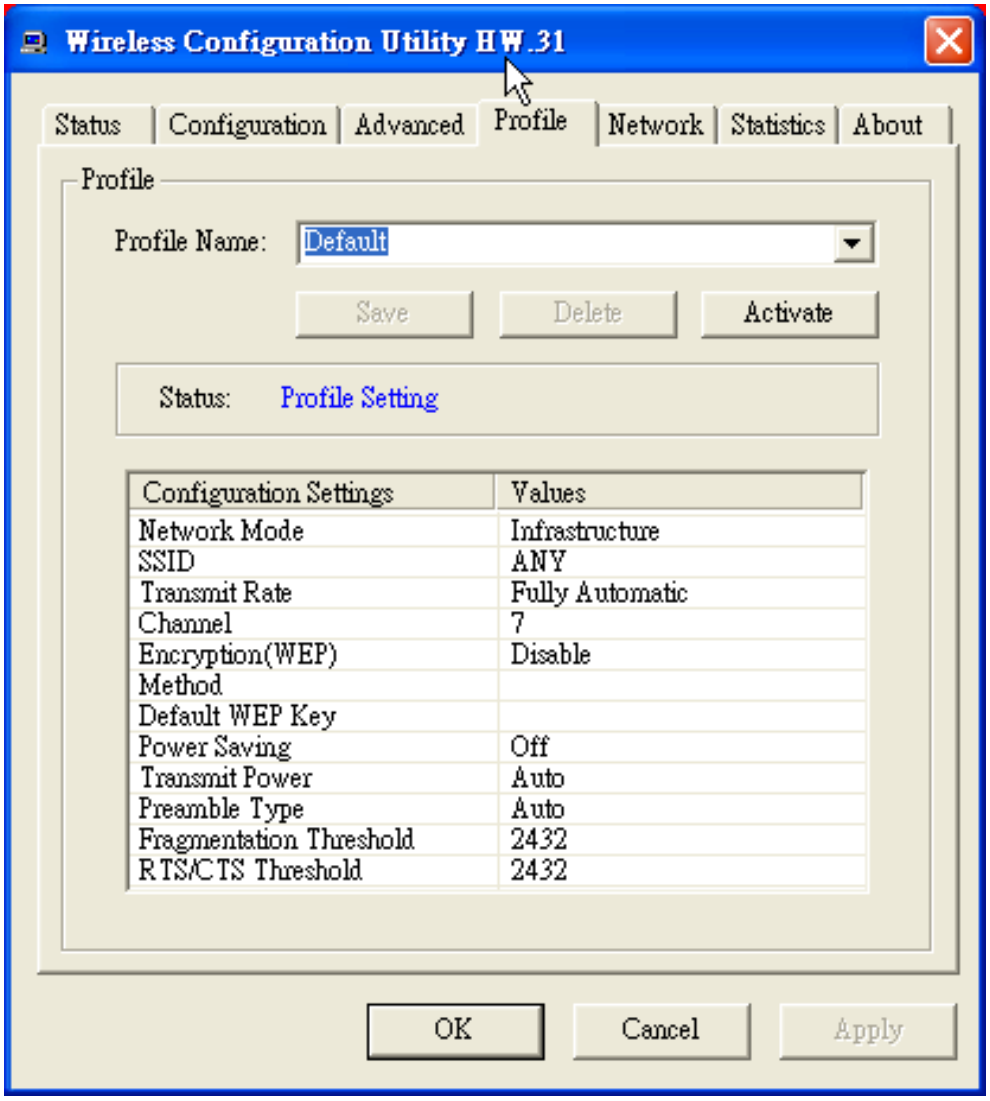
Fragmentation Threshold is a way of transmitting the packets that will be fragmented. Choose a setting within a range of 256 to 2432 bytes. It is recommended to fragment the packet when the link quality is bad, it is to prevent the wasting time of resending a long packet that is lost.

- RTS/CTS Threshold:

The RTS/CTS Threshold is a station initiates the process by sending a RTS frame, the other ends receives the RTS and responds with a CTS frame, the station must receive a CTS frame before sending the data frame. This is to prevent the collisions by each station. Choose a setting within a range of 256 to 2432 bytes. It is recommended limiting a long packet to prevent each station waiting too long to transmit a data.

Profile

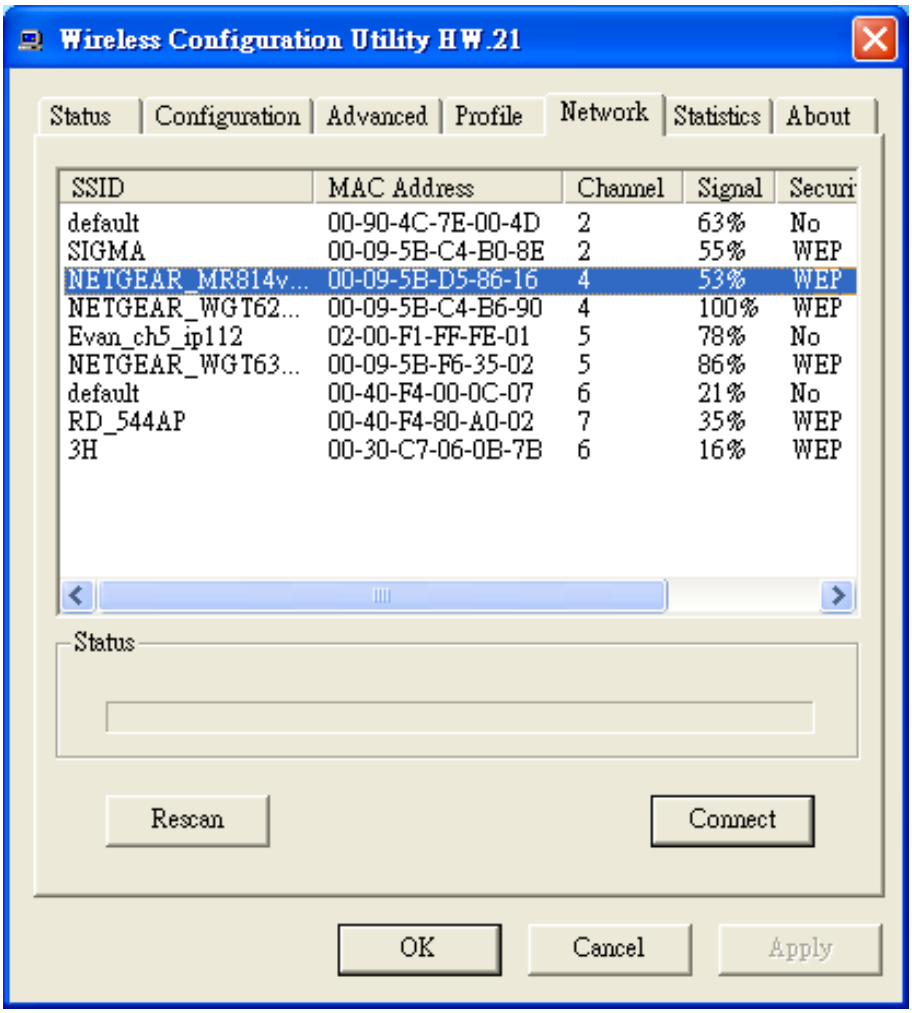
The Profile section allows you to set values for all parameters by selecting a previously defined profile. Type a name in the Profile Name field to create a profile, click “Save” and then click “Apply” when a profile is done. You can click “Delete” if the profile is no longer used, to activate other profile, choose a profile name in the Profile Name field and click Activate.



Network

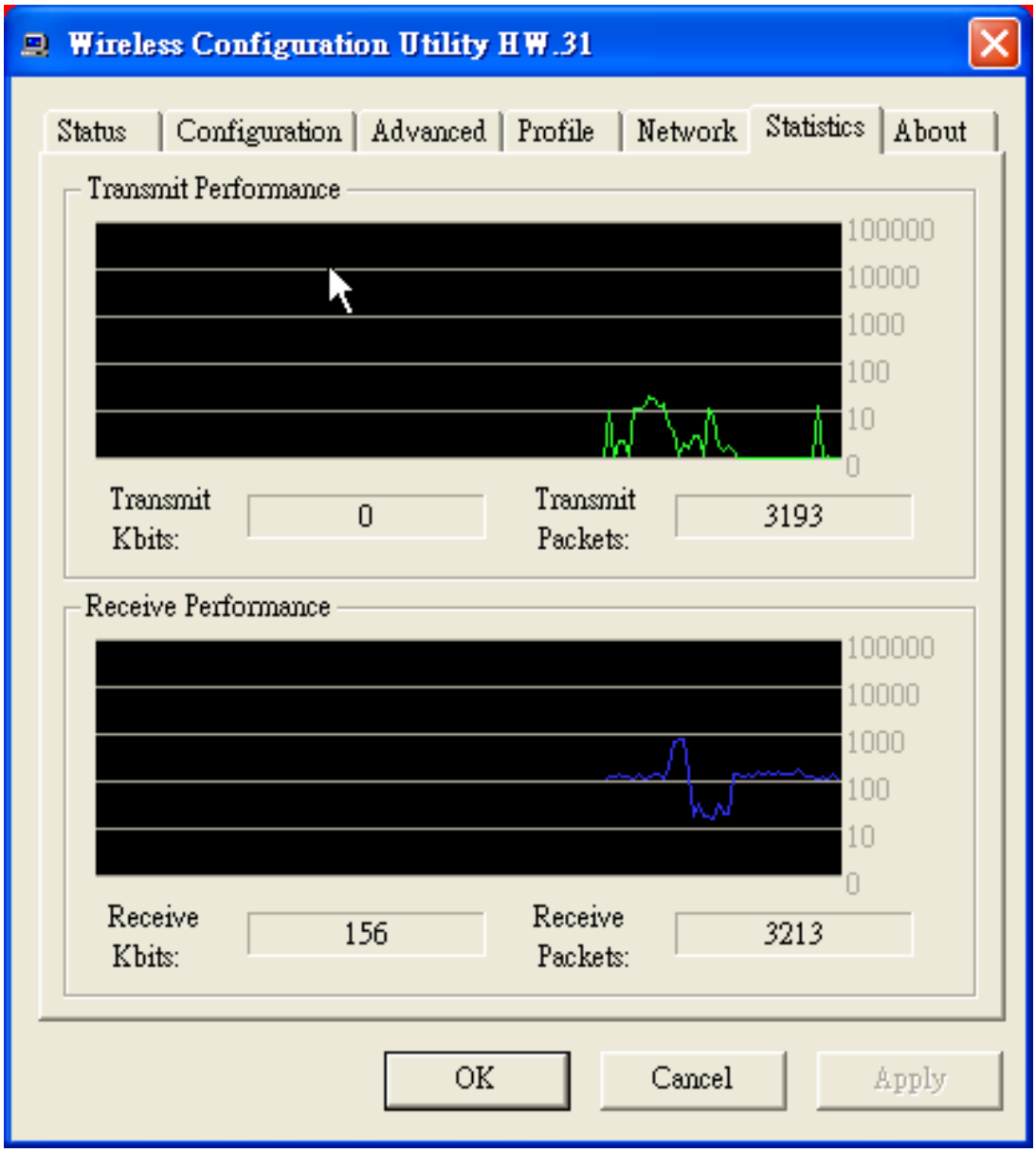
The screen shows all the Wireless devices around your Wireless Adapter. The information of the wireless devices includes the SSID, MAC Address, Channels, Signal, the Security type and the Network mode.

You can click the “Rescan” button to find the new wireless devices, and double-click the device to choose the wireless station that you want to connect with.



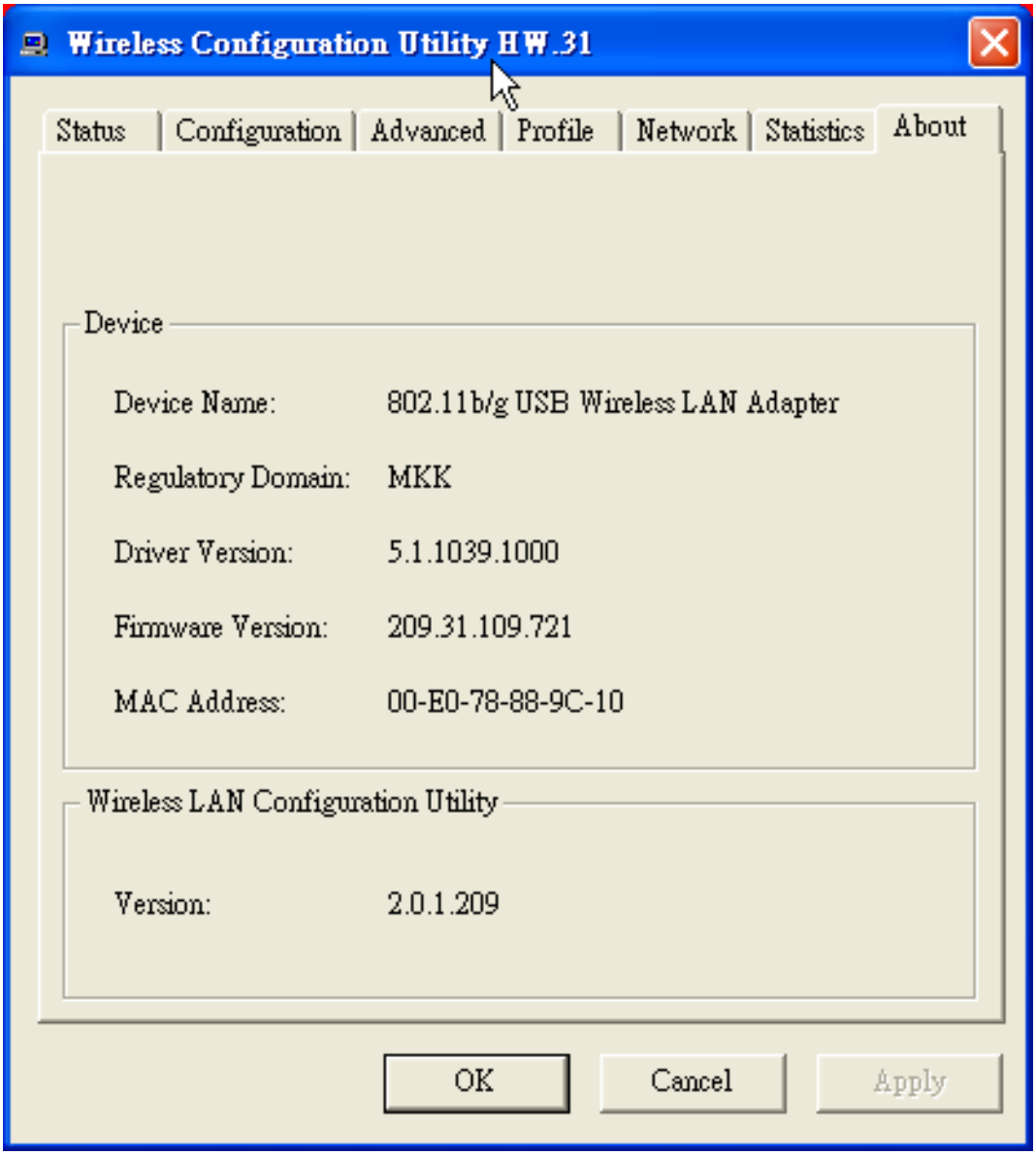
Statistics

The Statistics section shows the real-time transmit and receive packets of the Wireless Adapter.



About

The About section shows the Device Name, Regulatory Domain, Driver Version, MAC Address and the Utility version.



TECHNICAL SPECIFICATIONS

General	
Standards	IEEE 802.11g, USB 2.0, 1.1, 1.0
Radio Technology	IEEE 802.11b Direct Sequence Spread Spectrum (DSSS) IEEE 802.11g Orthogonal Frequency Division Multiplexing (OFDM)
Data Transfer Rate	1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, 54Mbps (auto sense) *When plug the device in the USB 1.1/1.0 port, the real throughput will be up to 6Mbps only when running 11Mbps or higher speed
Receiver Sensitivity	54Mbps: Typical -72dBm @ 10% PER (Packet Error Rate) 11Mbps: Typical -83dBm @ 8% PER (Packet Error Rate) 1Mbps: Typical -94dBm @ 8% PER (Packet Error Rate)
Frequency Range	2412 ~ 2484 MHz ISM band (channels 1 ~ 14)
Modulation Schemes	BPSK/QPSK/CCK/OFDM
Channels	1 ~ 11 channels (FCC) 1 ~ 13 channels (ETSI) 1 ~ 14 channels (Japan)
Media Access Protocol	CSMA/CA with ACK
Security	64/128-bits WEP Encryption; WPA
Diagnostic LED	LNK (Link status)
Antenna	Integrated Antenna
Physical and Environmental	
Driver Support	Windows 98se, Windows 2000, Windows ME, Windows XP
Continuous Current Consumption	230mA typ. for receive mode, 380mA typ. for transmit mode
Temperature	Operating: 0° ~ 40° C, Storage: -10° ~ 70° C
Humidity	10% ~ 95% RH, no condensation
Dimensions	77 x 26 x 12 mm (W x H x D)
Certifications	FCC Part 15.247 for US, ETS 300 328 for Europe,